

CLAIMS

1. A method for forming a dual layer electroplated structure in a flat panel display device, said method comprising the steps of:

a) forming an opaque conductive layer over selected portions of said
5 flat panel display device; and

b) electroplating material onto said opaque conductive layer disposed over said selected portions of said flat panel display device such that a dual layer electroplated structure is formed over said selected portions of said flat panel display device.

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2. The method for forming a dual layer electroplated structure in a flat panel display device as recited in Claim 1, wherein said flat panel display device is a field emission display device.

15 3. The method for forming a dual layer electroplated structure in a flat panel display device as recited in Claim 1, wherein said electroplated structure is a black matrix.

4. The method for forming a dual layer electroplated structure in a
20 flat panel display device as recited in Claim 1, wherein said electroplated structure is a focus structure.

5. The method for forming a dual layer electroplated structure in a flat panel display device as recited in Claim 3 wherein step a) comprises
25 forming said opaque conductive layer over a substrate and between subpixel regions of said flat panel display device.

6. The method for forming a dual layer electroplated structure in a flat panel display device as recited in Claim 4 wherein step a) comprises forming said opaque conductive layer over a cathode structure and between electron emitting regions of said flat panel display device.

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7. A low-contaminant dual layer apparatus adapted for use in a flat panel display device, said structure comprising:

10 a dual layer electroplated structure for containing the movement of electrons, said electroplated structure residing within an active region of said field emission display device, said electroplated structure containing substantially no organic material.

15 8. The low-contaminant dual layer apparatus adapted for use in a flat panel display device as recited in Claim 7 wherein said dual layer electroplated structure is a black matrix.

20 9. The low-contaminant dual layer apparatus adapted for use in a flat panel display device as recited in Claim 7 wherein said dual layer electroplated structure is a focus structure.

10. A method for forming a dual layer electroplated black matrix in a flat panel display device, said method comprising the steps of:

a) depositing at least one opaque conductive layer above a faceplate of said flat panel display device;

25 b) depositing a layer of photoresist above said opaque conductive layer;

6. The method for forming a dual layer electroplated structure in a flat panel display device as recited in Claim 4 wherein step a) comprises forming said opaque conductive layer over a cathode structure and between electron emitting regions of said flat panel display device.

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7. A low-contaminant dual layer apparatus adapted for use in a flat panel display device, said ^{which structure?} structure comprising:

102 (b)

a dual layer electroplated structure for containing the movement of electrons, said electroplated structure residing within an active region of said ^{L.A.B.} (field emission display device,) said electroplated structure containing substantially no organic material.

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8. The low-contaminant dual layer apparatus adapted for use in a flat panel display device as recited in Claim 7 wherein said dual layer electroplated structure is a black matrix.

102 (b)

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9. The low-contaminant dual layer apparatus adapted for use in a flat panel display device as recited in Claim 7 wherein said dual layer electroplated structure is a focus structure.

102 (e)

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10. A method for forming a dual layer electroplated black matrix in a flat panel display device, said method comprising the steps of:

a) depositing at least one opaque conductive layer above a faceplate of said flat panel display device;

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b) depositing a layer of photoresist above said opaque conductive layer;

c) selectively removing said layer of photoresist such that said layer of photoresist is removed from above first regions of said opaque conductive layer and such that photoresist structures remain above second regions of said opaque conductive layer;

5 d) electroplating material onto said first regions of said opaque conductive layer such that dual layer electroplated structures are formed between said photoresist structures;

e) removing said photoresist structures disposed above said second regions of said opaque conductive layer;

10 f) removing said second regions of said opaque conductive layer from above said faceplate such that said dual layer electroplated structures remain disposed above said faceplate between locations at which sub-pixels will be subsequently formed.

15 11. The method for forming a dual layer electroplated black matrix in a flat panel display device as recited in Claim 10, wherein said flat panel display device is a field emission display device.

20 12. A method for forming a dual layer electroplated focus waffle in a flat panel display device, said method comprising the steps of:

a) depositing at least one opaque conductive layer above a cathode of said flat panel display device;

b) depositing a layer of photoresist above said opaque conductive layer;

25 c) selectively removing said layer of photoresist such that said layer of photoresist is removed from above first regions of said opaque conductive

layer and such that photoresist structures remain above second regions of said opaque conductive layer;

d) electroplating material onto said first regions of said opaque conductive layer such that dual layer electroplated structures are formed
5 between said photoresist structures;

e) removing said photoresist structures disposed above said second regions of said opaque conductive layer;

f) removing said second regions of said opaque conductive layer from above said cathode such that said dual layer electroplated structures
10 remain disposed above said cathode between electron emitting locations of said cathode.

13. The method for forming a dual layer electroplated black matrix in a flat panel display device as recited in Claim 12, wherein said flat panel
15 display device is a field emission display device.